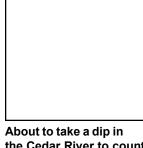


## Jan-March 2001 Vol. XI, Issue 1 In this issue

- Water Woes
- Regional Business Center
- Seattle Earthquake
- Cedar River Snorkeling
- North Jetty Rehab
- Geographic Information System
- Army Transformation
- Around the District



the Cedar River to count fish. Photo by Leslie Kaye.

Col. Ralph H. Graves, Commander Dave Harris, Chief, Public Affairs Jan Marcan, Editor Patricia Graesser, Contributor Steve Cosgrove, Contributor Leslie Kaye, Contributor Kim Carlson and Shannon Chenoweth, Photographers



Flagship is your news and feature magazine,

published quarterly. If you have news, suggestions for articles or ideas you think would be useful for Flagship, we'd like to hear from you. Send your ideas to the editor at the address below or call the Public Affairs Office at (206) 764-3750.

Flagship is an unofficial publication authorized under AR 360-l, published by the Public Affairs Office, Seattle District, U.S. Army Corps of Engineers, P.O. Box 3755, Seattle, WA 98124-3755.

The views and opinions expressed are not necessarily those of the Department of the Army. Questions can be sent to the above address or by e-

janet.k.marcan@usace.army.mil

This issue was especially prepared for Theola Hall-Austin and all other employees of Seattle District.





Notebook

Commander's

**Balancing the** objectives scorecard

Col. Ralph H. Graves

very once in a while we step back from our day-to-day work and ask ourselves if there are changes we can make in order to do it better. For the past few years in the Corps we have referred to such organizational improvement efforts as "strategic planning."

Lt. Gen. Ballard set the pace in 1997 by publishing two documents, his "Strategic Vision" and a complementary "Campaign Plan," outlining how the Corps would advance along the axes of investing in people, revolutionizing effectiveness and seeking growth opportunities. Now the current Chief, Lt. Gen. Flowers, is setting the strategic direction for the next four years. Recently we have also done strategic planning work at the Northwestern Division level and here in Seattle District.

You can find the draft "capstone document" and other elements of USACE strategic planning on the web at http:// corpsinfo.usace.army.mil/mp/n/50th/. The capstone pamphlet features General Flowers' famous "JUST DO IT!" card emphasizing every employee's basic responsibilities and granting permission to exercise initiative on behalf of our customers. Lt. Gen. Flowers directs us to aim at improving the Corps along the dimensions of people, process and communication. The preliminary Campaign Plan identifies supporting objectives such as "Attract and retain a world-class workforce," "Practice Project Management across all levels" and "Integrate strategic communications into our business processes."

The week of Feb. 5, Brig. Gen. Strock led some 85 division and district people at Excelsior Springs, Mo., for the fourth annual Northwestern Division Vision Conference. After reviewing the HOUSACE planning efforts and hearing Capable Workforce Initiative reports from the five district commanders, the group worked to identify what we could accomplish in this region in the people, process and communication areas. The result is a list of nine initiatives ranging from "Create a regional training strategy" to "Integrate Automated Information Systems (AISs) into corporate business processes." You can find briefing material from the Vision Conference at http://ppdsintra w.usace.army.mil/ppds/divpages/default/asp?division= NWD&district=NWD and the NWD and RMB Discussion buttons.

Against this background of strategic planning activity we held a two-day Seattle District offsite session at Fort Lawton on Feb. 27 and 28. Members of the District Executive Team, the Project Delivery Management Team, other supervisors, program managers, and employee representatives from the field and the district headquarters met to determine our own organizational improvement direction for the coming two years. Based on what I had learned from the USACE and NWD sessions, I encouraged the group to tie our objectives to those of the rest of the Corps



## You have clout, too

By Dave Harris

nnoticed and unsung, often behind the scenes, sometimes behind bars, Seattle District leaders from GS-3 to O-6 make the turning-point contact and persuade someone to say the makeor-break "yes" needed to assure project success.

After years of drinking bottled water prompted by contaminated wells, the citizens in Skyline, Wash., near Moses Lake, look forward to the imminent digging of a community well to access crystal pure water. It's a long-needed change for the better, thanks to project manager Bill Graney and his never-say-die team of pros.

Standing in the way were citizen property owners whose consent was key to water rights and rights of entry. Project people diligently generated masterful letters in a massive effort to find or persuade reluctant citizens or members of Congress. Objective: politely and forcefully convince owners to say the magic words and keep the project moving.

After extensive extra efforts by Real Estate's Cindy Wikstrom and

Claire Wilson, A.E. Hamilton learned that one of the crucial landowners resided in jail, a convicted felon. No problem. A.E. quietly went to prison. He politely convinced the inmate to sign the papers, and A.E. gladly and promptly got out of jail. But not until he got away with the goods.

Perhaps Rep. Doc Hastings could persuade another landowner. An articulate letter, resplendent with background and logic, weaved its way up to the Executive Office, black and blue with laddered coordinating signatures and a Pulitzer Prizewinning memorandum for record explaining the need

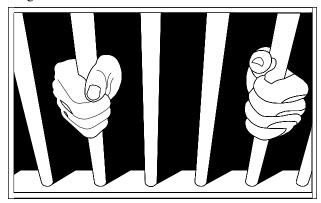
for strategic clout from on high. Deputy Commander Lt. Col. Mark Holt, pondering over the letter, thought to himself, "I wonder if it would do any good for me to just pick up the phone and talk to the landowner." He did. The two had an amicable chat, and the landowner gladly promised the needed signature. No more need for the congressional letter.

"The landowner had been stalling for

over three months and in spite of everything we could do still refused to sign to allow entry. Lt. Col. Holt called the gentleman to discuss the importance of well installation and concern to provide a source of clean water. The man signed the ROE," exuded Dave Roden, Formerly Used Defense Sites Program Manager. "This is tremendous District Executive Team support and should be applauded. Those folks take quite a few hits but we never discuss the positive aspects of what they do."

Success story: People will get to drink their own clean water because, whether in prison or in ivory towers, fellow humans at every level have awesome persuasive powers and clout.

How you use your gifts makes all the difference in clearing up bitter waters.



and to identify "task organization," the individuals and teams who would actually make our improvement ideas happen.

I was very pleased with the conduct and the results of our session. We constructed a balanced scorecard of objectives in the three USACE areas of people, process and communication and in a fourth area of "customer," as well. We have already shared some information about the results over Quickread. Some of the objectives address specific areas such as training, use of e-mail, and recruiting and hiring.

Others recognize the continuing importance at Seattle District of organizational culture or workplace climate in providing a productive and pleasant working environment. We can build further on the values expressed in the 1997 Guide to the Future. The "people" people captured it best with their goal statement: "We want a working environment where people say, 'This is a great place to work, and we do great work!"

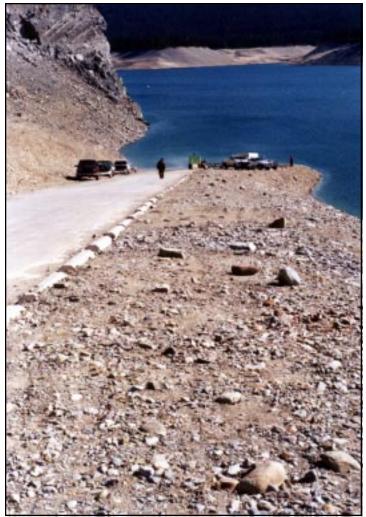
Thanks to all those who participated in the offsite and contributed their energy to the ideas. I suggest those who were not able to attend talk to those who did (and vice versa)

to learn more about the ideas shared and to tap into the energy. We'll be working in the coming months to translate both into real changes in our workplace.

Our offsite and the lives of everyone in the Puget Sound area were shaken up by the earthquake event of Feb. 28. (One of the more lamentable consequences of the earthquake was an avalanche of weak puns.) While the event was pretty scary, most of us were fortunate to escape without injury or property loss.

Our extended emergency management team responded with high professionalism, and we were able to get back to work in the Federal Center South after only a half-day outage. Yet clearly we have work to do to prepare for the much bigger potential quake that could hit the region. This one should motivate increased efforts.

Roll Frans



A boat ramp extends down toward a lower than normal Lake Koocanusa.

## Water woes

An effort to balance all the region's needs at Libby Dam and elsewhere

By Patricia Graesser

his winter, as the federal power system faced supply and economic challenges unprecedented in its history, Seattle District more than tripled flows from Libby Dam in Montana to boost power production at dams on the Columbia River.

By February, the Corps had increased flows from Libby to 15,000 cubic feet per second. Flows out of Libby at that time of year are normally 4,000 cfs, according to water managers with the Army Corps' Seattle District.

The Corps responded throughout the region to requests from the Bonneville Power Administration for additional production to help meet demands for electricity during the declared power emergency in the Pacific Northwest.

Greg Delwiche, BPA vice president for power supply, said hydropower generation this winter was 4,000 average megawatts less than the past five-year average. That's about

four times the amount needed for the city of Seattle. Meanwhile, power normally available from California has dried up due to shortages there.

According to Northwestern Division only 1.56 inches of precipitation fell in the Northwest in January—the fifth driest on record since 1895.

"This year is so dry that the Biological Opinion does not require sturgeon flows from Libby Dam," said Marian Valentine, senior water manager at the Seattle District. "Drafting Libby below the rule curve for power generation could impact refill, limit our ability to meet a bull trout minimum of 6,000 cfs in July, and limit water availability for salmon in August." She also said that a proposal for a spill test looks highly unlikely for this year.

"We are seeking to appropriately balance the needs of fish and electricity consumers during a serious drought," said Steve Wright, acting Bonneville Power Administration administrator. "Even so, we have employed every means available to minimize deviations from salmon guidelines this year and will continue to do so."

More than one half of the Columbia basin is at or below 50 percent of average snow pack. Low precipitation and low snow pack make the probability of refill at Corps reservoirs by June 30 less than 50 percent, according to the Corps' Northwestern Division.

"There is not enough water, unless something changes in a big way," said Valentine.

In the Seattle area, Lake Washington can meet most of the needs that it typically meets, she said. Hydraulics & Hydrology Section is continuing to work on scenarios and doesn't see a problem with filling the lake. The Corps began the process as early and as high as possible this year to allow the fullest flexibility.

The Corps may not be able to run all four of its new smolt passage flumes through August. However, because of an adaptable design, the Locks should be able to run at least two flumes this spring and taper down to the smallest one during part of the day in August. This is possible because two-thirds of the runoff in the basin in the spring is from rain, not snowmelt, and the precipitation forecast for spring is near normal.

The district also has a drawdown guide curve for 70 percent reliability of maintaining an elevation above 20 feet above sea level (the low pool level for Lake Washington). The 70 percent reliability is just a planning tool, and the Corps will not conduct an operation that will knowingly put the lake below 20 feet. If, at any time, the lake is forecast to drop below 20 feet, the district will begin conservation measures to prevent this: curtailing smolt slides and purse seine tests, closing salt water returns, restricting lockages, etc.

As water managers look toward summer, the situation doesn't appear greatly improved. The Natural Resources Conservation Service forecasts spring and summer stream flows of less than 70 percent of average in many areas of Oregon, Washington, Idaho and Montana. Corps and BPA staff (as well as electricity rate payers) are hoping for a wet spring and a mild summer to moderate the impact of this winter's lack of water.

# Regional Concept: A new relationship with your sister district

#### By Dave Harris

"Poaching" may have described the Old School way of looking at Corps work in the Pacific Northwest. Hey, sister district, stay out of our back yard, and we'll stay out of yours. If we have a project, no matter how large, we'll staff up for it...even if it means a rough-and-tumble reduction in force—a RIF—after the dam is built or the hospital completed.

No more. In 1998 Lt. Gen. Joe Ballard, then Chief of Engineers, directed that each division within the Corps operate as a Regional Business Center—RBC.

"This is the Corps' answer to the declining workforce," says Mike Bevens, Deputy District Engineer for Programs, Planning and Project Management. "Not every district needs to hire or maintain every kind of expertise. It's a corporate look at business process and workload in order to serve our clients. Each district can draw on the expertise of a sister district—get the best of everyone's ideas and share resources."

Briefly, the RBC is "an integrated business team...not an organization...a concept for operation...the entire spectrum of personnel, districts, project sites, area offices, centers of expertise, and headquarters staffs within the division..."

The RBC is managed by the division's Regional Management Board—RMB. RMB members from Seattle District are Bevens; Joe Duncan, Chief, Real Estate Division; and Bill Moore, Chief, Resource Management.

"Not all work activities are a perfect fit for the regional concept," Bevens explains. As an example, a regional view has evolved on how to work with tribes. "But each tribe has its own characteristics and culture," he says. "The district is best to deal

with day-to-day issues. These are 'micro' matters, not regional. The regional view allows us to act as one nation with one voice, rather than five tribes with five voices."

He points to the command operating budget process as a regional success story. "We're all using the same templates to compare apples to apples, and regionally that's done very well."

Besides the budget, Bevens says the regional concept works well to address such topics as water management, high grade allocation and management, and construction's supervisory and administrative—S&A—account management. "It's strengthening relationships across districts and changing the culture," he says, "but in a positive way."

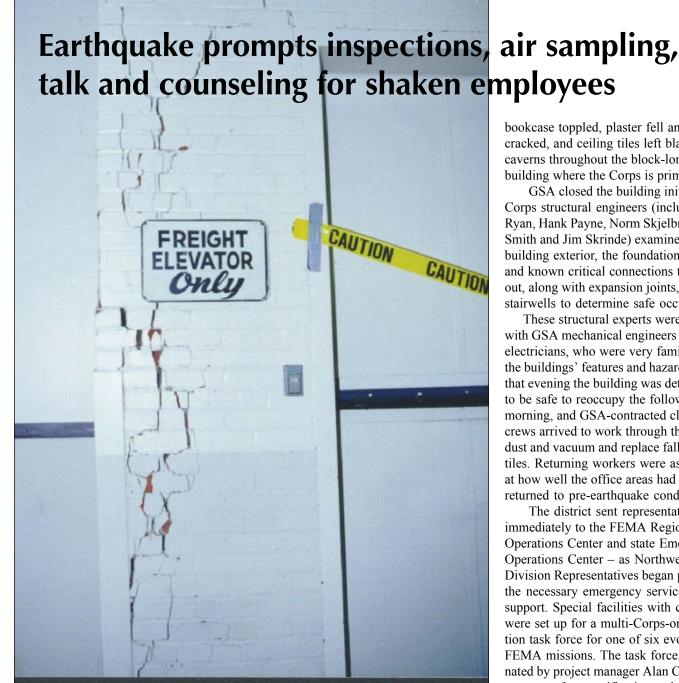
As a practical matter, he points out Seattle District staff visits to Kansas City District to investigate and discuss support that district might provide for the multimillion-dollar Initial Brigade Combat Teams at Fort Lewis. The Army has officially begun the transformation of the first of two brigades at Fort Lewis to Initial Brigade Combat Teams. The new interim design will enable the Army to deploy brigades faster and be ready to fight upon arrival. The choice, according to Bevens: Old School staffing up and an eventual RIF, or drawing upon the capabilities of a sister district to augment Seattle District.

Seattle District Commander Col. Ralph Graves sees the benefit of RBC. "There are a lot of reasons for Seattle District to help grow Northwestern Division regional cooperation," he says. "Districts all face similar challenges, so we can learn from each other. We have some big issues, like operating the Columbia River projects, that require cooperation across district lines. And we hope to be able to level workload and improve access to critical skills through inter-district teaming on projects. I expect the emphasis on regional cooperation to grow even more in the future."

Bevens addresses local concerns that people may construe use of RBC to "drastically change the way we do business by forcing us to take support from a sister district" when we have the capability. "That's not the purpose," he says. "It's to reinforce the ability to share resources and develop common cross-district support elements.

"Bottom line," he says: "Build relationships and it will happen."





A steel brace helped prevent further damage of the wall at the freight elevator.

By Dave Harris/Photos by Kim Carlson and Shannon Chenoweth

orty-five seconds of shaking seemed like eternity. Federal Center South in Seattle rattled and rumbled to an Ash Wednesday earthquake with a magnitude of 6.8. Seattle District employees had already talked about a recent seismic study of their historic office building, built by Henry Ford in 1928. Would this be the big one? Thankfully, the riveted steel frame building performed as designed and predicted.

"What an experience. I'm sitting there, drinking my tea, when the wall started banging," said Steve Cosgrove in the Public Affairs Office. "Before I

could say 'what the....', a piece of tile hit me on the head. No damage—it was my head," he quipped. "The wall and windows were shaking violently. The floor started pulsating. I dove under the desk until the shaking subsided—it seemed like forever —thinking to myself, 'something like this could kill you.' As soon as it stopped, I grabbed my Palm top, checked to see if a coworker was OK (she was already gone), and headed for the door at a quick clip.

"Jeez, that building shook and groaned like a constipated elephant."

Fortunately all 600 employees escaped, as a stray file cabinet and

bookcase toppled, plaster fell and bricks cracked, and ceiling tiles left black caverns throughout the block-long GSA building where the Corps is prime tenant.

GSA closed the building initially, but Corps structural engineers (including Jim Ryan, Hank Payne, Norm Skjelbreia, Alan Smith and Jim Skrinde) examined the building exterior, the foundation, the roof and known critical connections throughout, along with expansion joints, pipes and stairwells to determine safe occupancy.

These structural experts were teamed with GSA mechanical engineers and electricians, who were very familiar with the buildings' features and hazards. By that evening the building was determined to be safe to reoccupy the following morning, and GSA-contracted cleaning crews arrived to work through the night to dust and vacuum and replace fallen ceiling tiles. Returning workers were astonished at how well the office areas had been returned to pre-earthquake conditions.

The district sent representatives immediately to the FEMA Regional Operations Center and state Emergency Operations Center – as Northwestern Division Representatives began planning the necessary emergency services support. Special facilities with computers were set up for a multi-Corps-organization task force for one of six evolving FEMA missions. The task force, coordinated by project manager Alan Coburn, was to perform verification and valuation of damage to publicly owned buildings in the disaster area, to include the King County Courthouse. Seattle District's EOC staffed up for 24-hour operations.

"We also responded to the Shoalwater Tribe's request for flood control assistance," said Arill Berg, Chief, Emergency Management. "Eric Winters and his team placed a 1,500-foot protective berm along the coast to protect the tribal center and other reservation

"We also offered help to Fort Lewis and inspected several Reserve centers for the 70th Reserve Support Center. We provided four structural engineers to FEMA and our Native American coordinator," he added. In addition, employees began inspecting facilities at McChord

Air Force Base, south of Tacoma, near the epicenter.

With many Seattleites attempting to make phone calls and cellular towers out of service, few calls got in or out. Dutch Meier, Chief, Public Affairs, Walla Walla District, patched into Seattle workers at home and at projects. Homes became temporary offices enabling a back-channel news release draft to be sent to Walla Walla. Meier and his staff changed logos to Seattle District and dispatched the news that operating projects functioned with "business as usual." Updates appeared on Seattle District's strategic web.

Ernie Gomez, dam safety officer, headed for nearby Mud Mountain and Howard Hanson Dams with teams of experts.

"On-site forces implemented their respective post earthquake response inspection procedures. Within hours of the event, additional Dam Safety Team Inspections were also conducted," Gomez reported.

Experts from the Waterways Experiment Station came in to participate. "Lake Washington Ship Canal and Mud Mountain Dam did not experience any dam safety related damage. Howard Hanson Dam did experience fine cracks at the crest, right abutment parking area and on the upstream face access road, and the strong motion instrument housing moved about four inches upstream," Gomez said.

He concluded after the on-site inspection of Hanson that the cracks were cosmetic in nature, the dam behaved as expected, and the project was safe for continued operation.

Two shallow trenches were excavated on the dam crest to study the cracks. The cracks, as expected, were not deep and were caused by the density variations in the underlying soil/gravel/rock materials, utility lines and utility trench.

District Commander Col. Ralph Graves led a Town Hall by week's end. Structural engineers gave employees a grass-roots perspective, GSA discussed air sampling completed to date, and employees offered suggestions for further testing.

Larry Senechal, Chief, Civilian Personnel Advisory Center, passed out brochures on the Employee Assistance Program offering counseling on earthquake concerns and emotions to frazzled workers.





Left: Teams from FEMA and the Corps inspect earthquake damage in the King County courthouse; above: stairways sustained the worst damage at Seattle District headquarters; below right: clean-up crews began work as soon as the building was declared safe; below left: one of the worst hit buildings nearby; and (bottom)Seattle Chocolates, candy could be seen among the fallen bricks.









# North jetty hits the heights

At left - residences overlook rock placed nearly 70,000 tons of rock North Jetty at the end of Ocean S Harbor. Top right - Roglins Inc. h.

GRAYS HARBOR

tate the North Jetty. Middle - Coi progress along the jetty. Bottom -North Jetty.

Story by Patricia Graesser/photos by Eric Nelson

t the south end of what is now Ocean Shores, Wash., the Corps of Engineers set out a century ago to tame the roaring Pacific Ocean.

The Corps sought to force harbor outflow into a single channel that would self-scour with its own volume and velocity and provide a less hazardous route for shippers to enter Grays Harbor ports.

Seattle District built the south jetty at Westport in 1902 and the north jetty at Ocean Shores soon after to direct harbor outflow.

By 1910, the Corps had completed a north jetty, originally 10,000 feet long and an elevation of plus 5 feet mean lower low water (mllw). Between 1910 and 1913 the Corps extended the jetty to 17,200 feet, and in 1916 the Corps raised its height to +8 mllw. During 1941 and 1942 an 8,228 foot section was constructed to +20 mllw.

The jetty deteriorated due to decades of crashing ocean waves. By the 1970s, the north jetty required major maintenance. In 1976, the district performed a huge rehabilitation project,

placing 120,000 tons of 8-ton rocks and 80,000 tons of 14-ton rocks.

More than two decades later, in 1999, the average crest had fallen to between 16 and 20 feet, and gaps developed where the elevation was +14 feet or below.

Over time the harbor entrance has lost a significant amount of sediment from the areas north and south of the jetty, according to a design analysis by Eric Nelson, a Seattle District hydraulic engineer. The protection once afforded by the bar has been lost, and ocean storm waves approaching from the southwest now pound the north ietty.

In the severe winter of 1999, storm waves in excess of 20 feet widened and damaged areas of the jetty and lowered portions of the top elevation to +13 mllw. This was the same storm that destroyed the state park restrooms and caused considerable flood damage to private and public property nearby.

The Corps advertised a major rehabilitation project in April 2000 and awarded a contract in July 2000, originally for \$6.2 million, to Roglins, Inc., a contractor out of Aberdeen, Wash.

The Corps and Roglins worked prior to beginning construction to resolve public concerns regarding the project's potential impacts on local road conditions. The trucks would be hauling huge, heavy rock along 7 miles of city roads, and the city's residents didn't want to suffer potential consequences.

To dispel worries, the Corps and contractor negotiated a deal in which Roglins would smooth some existing dips in the road before hauling began and would be responsible for repairing hauling damage to the roads during and after construction.

"They've made our job easier," Bill Brooker, Resident Engineer for the Corps, said of Roglins. "They're great to work with and have done well on several projects in Grays Harbor in the past three vears."

This season's rehabilitation project included placing 57,100 tons of class A (14-ton) rocks and 10,400 tons of smaller stone. Congressional funding for the



for the rehabilitation project. Aerial - the hores, Wash., aids navigation into Grays auls huge rocks to Ocean Shores to rehabilistruction workers inspect the rock placement looking out to sea, the view west from the

rehabilitation work ended up short of the original contract – down to \$4.3 million.

Nevertheless, the rehab brought a large section of the jetty up to a height of +23 feet. The added height won't prevent flood damage, but it should reduce the volume and intensity of water overtopping during storms.

Rock hauling wrapped up at the beginning of January, according to project manager Mark Howard and Resident Engineer Brooker.

"The city is real pleased," said Howard. "And for all the concerns beforehand, we received no real complaints."

Other recent navigation-related work in Grays Harbor includes work across the channel at Westport's south jetty and revetment, as well as beach nourishment at adjacent Half Moon Bay.

A navigation study funded by Seattle District is also underway to look at a potential groin off the north jetty as a means to reduce shoaling in the federal channel. The Waterways Experiment Station in Vicksburg, Miss., is overseeing the study for the Corps.







Flagship-January-March 2001



Top: Cedar River ecosystem restoration in its current condition. Below: Biologists Dean Parson and Jeff Dillon survey the stream habitat for fish presence.

Opposite page: Plantings of indigenous vegetation (top left) and placement of large, woody debris (below left) are important to spawning salmon. Taking the plunge for fish, Paron and Dillon (right) suit-up for a fish-friendly survey.

## Survey snorkelers get a

# fish-eye view

Story and photos by Leslie Kaye

**B** eing one of the gang in this school is the goal. Two airtight-sealed divers sprawl face down in the water of the Cedar River, almost motionless. They quietly count small friends that squirm by.

Stream snorkel surveying scientifically establishes the presence of fish—especially listed endangered species. In order to employ this method of surveying for ecosystem projects around the district, a few lurking obstacles, other than just some large woody debris, needed to be maneuvered—namely, the obstacle of liability. Until recently it was the number one hurdle in the way of this survey method. But that hurdle didn't stop a school of innovative biologists and one safety officer from taking the plunge on this challenge.

Stream analysis and biological documentation comprise the most important purposes of snorkeling. Fish-friendly, factual, and fun comprise the other aspects. The three reasons why biologists tout the effectiveness of snorkel surveying:

- considerably more cost effective than other sampling methods;
- more convenient than other fish sampling methods (less gear, more mobility due to this); and
- quicker (less time consuming, more relevant data).
   The leading benefit the technique provides is ecological sensitivity to the fish.

Corps biologist Dean Paron explains: "To document the presence or absence of an Endangered Species Act fish, most traditional survey techniques, such as Electro-shock, would cause harassment or harm to the fish. Those methods not only require a special consultation with National Marine Fisheries Service and U.S. Fish and Wildlife Service, they are physically stressful to the fish, while snorkeling is a passive technique."

A representative survey looks at specific sections of a stream or river. "A typical process usually takes about 50 meters of a stream section," Paron says, "or it is project specific. We only do the applicable section of the water if it's project specific ... usually about 10 percent of the available habitat of a project if we're looking for the presence of ESA species fish. Outcome determines the protocol of the survey."

The data collected addresses more than just fish. "We assess habitat and invertebrates, habitat condition. It's a whole different view when you're actually in the water," Paron says.

Now consider the liability concern. Formerly, stream survey snorkeling fell under diving regulation, not uniquely as a snorkeling event. The diving safety criteria come from Navy standards, some of which do not apply to snorkeling. The survey snorkeling needs safe criteria within Corps guidelines for the most effectiveness. Obviously a distinction needed to be made between the snorkeling process and the diving process. The Safety Office made sure this happened, and a decision to swim with the big fish at headquarters yielded the desired result.

The initial need for survey snorkeling, brought to the attention of the diving coordinator for the district last fall because of a request for the Grays Harbor dredging project biological opinion, prompted actions toward getting approval





from headquarters for snorkel surveying.

USFWS wanted to determine whether bull trout (an Endangered Species Act list) populate the streams that feed the Wynoochee and Chehalis Rivers. Seattle District's responsibility included surveying the streams for the presence of that specific fish. Diving for scientific purposes typically involves contractors who Scuba dive. Due to the very nature of breathhold diving—more commonly called Scuba—it can be dangerous and costly. Weighing need against action, the standard Scuba diving solution bottomed-out.

Safety Manager Tim Grube championed the effort to make appropriate safety regulations for snorkeling. He approached Corps headquarters with the safety aspects. Appropriate safety procedures and solutions emerged with help from Paron, who has 10 years experience in survey snorkeling and a background in originating the technique of stream survey for the Rocky Mountain Research Station (Forest Service, Boise, Idaho); Fred Goetz, who pioneered the technique for bull trout surveys in graduate school; and Jeff Dillon and Jeff Laufle, who are experienced snorkelers. "One of the most important things was to get headquarters to understand the differences between diving and snorkeling," Paron says.

One such safety process involves an AHA—Activity Hazard Analysis—for each event. Experts analyze potential dangers to the biologists present at the stream or river at the time of survey and the corresponding solution.

The answer from headquarters was encouraging. As long the district met certain requirements and safety regulations, they would allow it. One caveat—final approval rests in the hands of



the district diving coordinator. "Headquarters empowered the district to meet its local needs," Paron says of the process.

The four requirements for a survey to be conducted include the following:

- depth restriction of five feet maximum;
- the surveyor has to be medically fit (CPR training, etc.);
- a back-up snorkeler needs to be ready in case there are problems with one of the team; and
- velocity restriction for the river or stream can be no more than 1 knot. In the case of the fourth restriction, a tethering requirement is added.

Five snorkel surveyors make up the team. Paron, Dillon, Laufle, Goetz and George Hart conduct certified stream survey scientific data collection. As requested by headquarters, current medical releases state the physical ability of each to conduct the snorkeling. "The medical release requirement is one of the criteria established in the exception waiver for the district," says Paron. The team is now 100 percent complete.

Stream snorkel surveying represents a triumph over a cumbersome process for fish and environmental scientific data collection. By recognizing a need, meeting the challenges associated with that need, and following chain-of-command protocol, a district-wide change for the better occurred.

"I appreciate the help and support of Tim in the Safety Office and that headquarters recognized this as being an important aspect of our jobs and a responsibility of the district," Paron says. "It allows us to meet our ESA requirements that would otherwise be much more difficult and expensive to get the biological information necessary for the ESA consultation."

Swimming with the big fish to get this factual and fun survey technique approved exemplifies how a school of many succeed at overcoming challenges lurking in the murky waters of district protocol.

## **GIS**—Tale of two districts

## Teams use space-age tools to zero in on 3D digs

By Steve Cosgrove

A n occupied building. Armed terrorists. Hostages. Negotiations at an impasse.

It's a job for the modern day "Untouchables," headed by Jack Mannion. Mannion, with his trusted public affairs officer, Nick Pierce, has selected a dream team of top cops to fight crime in "The District." His special assistant, crime mapper Ella Farmer, fires up her ArcView GIS (Geographic Information System) computer. Using its powerful mapping, database and imaging capabilities, she zeros in on a detailed 3D view of the building, analyzes possible sources of entrance and egress for the police hostage unit, and tracks officers from their portable GPS (global positioning system) units as they close in

The gunmen release the hostages and surrender as they're enveloped with police power. Another crime resolved, thanks to GIS technology. Ella enters all data generated by this rescue into a database to be called up when needed.

All this happened at "The District"? Yes, but not this district. "The District" is the nation's capital, as portrayed on the new CBS series of the same name. The series uses real GIS data and real GIS tools to show how modern police forces use new, powerful technologies in tactical mapping, incident tracking, traffic analysis, beat structuring, community policy issues, Internet crime, and much more.

Seattle District doesn't have GIS ace Ella Farmer, nor does it have much crime more serious than parking scofflaws and paperclip thieves. But Seattle District does have an expanding GIS capability, and it does have GIS ace Dave Fox in the Information Management Office. Fox is the person to talk to if you have questions about GIS.

What exactly is GIS? And how does it relate to another geographic system – GPS?

GIS – Geographic Information System – is a computer system that stores and uses layers of data to describe a geographic area. GIS integrates diverse information, such as topographic, hydrologic, biological, demographic and cultural attributes. The GIS user can configure this information to produce reports and maps or to generate new data.

GPS – Global Positioning System – is a satellite navigation system that provides specially coded satellite signals, processed in a GPS receiver, which can be used to compute horizontal position, velocity and elevation. GPS, funded and controlled by the Department of Defense, is one source of data for GIS.

The CBS series shows how modern police departments use GIS; how does the equally modern Seattle District use GIS?

"GIS is becoming an important tool for many professionals: planners, wildlife biologists, regulators, environmental engineers, archaeologists and hydrologists," Fox says. "I see four main uses – mapping, data distribution, spatial analysis,

and imaging."

Mapping. GIS can create any kind of map you can imagine and is a great tool for data visualization, planning and documentation. Examples of district projects using GIS mapping capability are the Master Plans for Howard Hanson, Chief Joseph and Mud Mountain dams; Environmental Impact Statements for the Green/Duwamish River Restoration Program and the Puget Sound Confined Disposal Site study; and biennial reports for the Dredged Material Management Program.

Data distribution. This is a powerful aspect of GIS. There is a tremendous amount of data available on a wide range of subject matter, much of it over the Internet. From environmental data, to cultural resources, to USGS quad maps – this information can be gathered and queried, resulting in maps and reports that answer very specific questions. An important example is the distribution of data needed for environmental reviews under the Endangered Species Act. Salmon spawning areas, eagle nesting sites and the geographic distribution of rare plant species are made available to environmental reviewers via the Intranet. In addition, almost any document or photograph can be scanned and stored as an attribute in a GIS database. With desktop GIS, you access this information by simply clicking on a map display.

Analysis. Specialized GIS tools can provide valuable analyses tailored to your task. You can analyze the suitability of a site for a particular use, do hydrologic modeling, or perform habitat analysis. The Puget Sound Confined Disposal Site study used spatial analysis tools to identify potential disposal sites for contaminated sediment. Another example is the use of FragStats by Environmental Resources Section to evaluate habitat restoration alternatives.

**Imaging.** We're speaking here of "image data" – digital images. For example, images of earth taken from satellites or aerial photographs overlaid on maps or used as base maps themselves. According to Fox, "Powerful image analysis software can be used to delineate vegetation types and perform change detection. Seattle District has only scratched the surface so far in exploring this use of GIS."

Technology such as this requires special tools. What tools are available and who in the district has access to them?

Fox explains that there are a wide variety of sophisticated tools available. For the more casual user, ArcExplorer is available as a free download either from mapping and GIS software giant ESRI (www.esri.com) or from the district's GIS Intranet pages. ArcExplorer will actually allow you to do quite a bit. You can view, query and do simple analysis of GIS data, including much of the data available on the Internet. If you have a valid GIS work requirement and need more powerful GIS software, you can request installation of

ArcView or ArcInfo.

The district is rapidly building its GIS Intranet resources. On the Intranet eNews page, under the "District Wide" heading, go to "Geospatial Data/GIS/ArcView." From here you can download ArcExplorer, request installation of ArcView, or explore GIS Internet links. Fox welcomes questions, so e-mail him or call him at 206-764-6083.

What's in store for the future?

"There's no doubt that GIS will become more widespread and heavily used within the district and throughout the Corps," he predicts. "We'll see more GIS data directly available via our web browsers and stored using Oracle, our enterprise database software. Other areas to watch: increasing satellite imagery and enhanced 3D imagery."

# Where in the world am I?

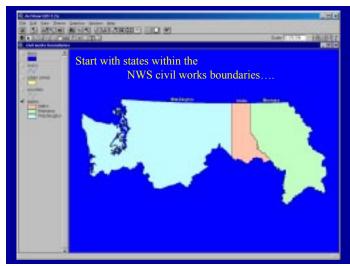
Ask GPS-the Global Positioning System

By Dave Fox

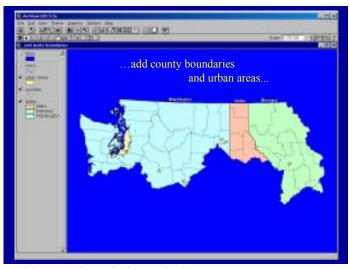
The Global Positioning System, commonly referred to as GPS, is a key source of data for Geographic Information Systems. GPS has 24 satellites, with 5 ground stations that track and control them. Whether you're delineating a wetland or out for a day hike, a GPS receiver will let you use signals from these satellites to determine your geographic location. How? Triangulation. Here's how it works.

First, the distance from the GPS receiver to an orbiting satellite is determined by measuring the time it takes for a radio signal from the satellite, traveling at the speed of the light, to reach the receiver. This requires highly precise timing - clocks on board GPS satellites are accurate to within about 0.000000003 of a second! To determine a geographic position using triangulation, your GPS receiver must receive these signals from at least three separate satellites, with a fourth satellite measuring the time offset. This gives you a corresponding geographic position. Depending on the accuracy of your receiver, this position may be within several meters or within the tip of a pencil.

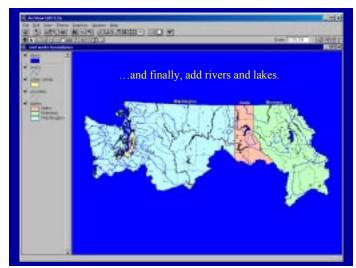
GPS satellites are positioned so that a user anywhere on earth can usually receive signals from at least five satellites. Until May 2000, the Department of Defense – GPS's owner and proprietor – intentionally degraded the signals available to civilian receivers for security reasons. This was called selective availability. The department has now abandoned this practice, resulting in a 10-fold increase in the accuracy now available with inexpensive GPS receivers, like the one in your pocket, on your boat or in your car.



Start with states within the NWS civil works boundaries...



...add county boundaries and urban area



...and finally, add rivers and lakes.

The district enters work to expedite the latest in

## Redesigning the Army and Fort Lewis

By Jan Marcan

orldwide Army Transformation begins here. Right at the top of the list of priorities this year is the Seattle District and Northwestern Division support to the new transformation initiative.

Seattle moved aggressively last year to collaborate the advance of project designs with the Fort Lewis Directorate of Public Works team and Initial Brigade Combat Team program proponents. Design charrettes and the Value Engineering process were used to fast track design development on this important program. Both Architect-Engineer and in-house project development teams were part of the effort.

"We're honored and excited to be together with Fort Lewis at the leading edge of Army Transformation," Seattle District Commander Col. Ralph H. Graves says. "It's a challenge to deliver these projects on time and to ensure that they prove to be the best support to the new formation, but it's good news the Army recognizes that force modernization requires facilities modernization too."

Seattle has elected to advertise over half the program as design-build construction projects early in the fourth quarter, "subject to availability of funds" since congressional approval of funding takes place later in the year.

Program Manager Jim Clark emphasizes the critical need to turn over this infrastructure work—which will sustain the Army's new brigade conversion—in a timely manner. "Hopefully," he says, "this will enable us to award in October, three to four months early."

Last April, General Eric Shinseki, Army Chief of Staff, announced the Army's Transformation initiative and transition of two brigades at Fort Lewis to Initial Brigade Combat Teams.

"Brigade conversion is a milestone on the road to transforming the entire Army into a force that is strategically responsive and dominant at every point on the spectrum of operations," he said when he unveiled the new Army vision. "Fort Lewis, using current off-the-shelf technology, will give us an interim capability as we move toward our long-term goal of the Objective Force."

What makes up an IBCT? A total of 3,500 soldiers in six battalions augmented by five companies; artillery and a new armored vehicle equipped with a high speed assault gun; and a power projection system able to place the force or any portion of it anywhere in the world within 96 hours—trained, ready, and logistically prepared to fight.

The bulk of new Fort Lewis facilities' requirements fall into three types, explains Clark. Stationing – housing and maintenance facilities required to support the new force structure; training – ranges and training facilities needed to prepare and support the combat teams; and deployment – improvements in facilities needed to satisfy the power projection mission. This is needed to air deploy combat teams within 96 hours, to inspect and process vehicles, munitions, and cargo and supplies to support sustained military operations

Eight IBCT projects programmed for the fiscal year 02 program year include a mix of stationing and deployment projects. They consist of two vehicle maintenance facilities, barracks, a combat vehicle trail, ammunition supply point expansion, deployment facilities, transportation inspection point, and container/pallet storage facilities.

Seattle District recently turned over a 48,000 square-foot Mission Support Training Facility to I Corps and Fort Lewis Commander Lt. Gen. James Hill. The building will house the latest in Army tactical training technology and was built in support of transformation training and objectives.

More than 300 computer platforms fully replicate and provide simulators to a unit Army battle command system. During the dedication ceremony, Washington's Congressman Norm Dicks spoke of the importance of the Army's new transformation initiative and committed his continuing support to the military mission and Fort Lewis.



The 48,000 square-foot Mission Support Training Facility.



Fort Lewis soldiers inspect the Light Armored Vehicle (LAV).

## An aging poplar population

By Patricia Graesser

Work to restore vegetation began Feb. 5 along the historic Fremont Cut in Seattle. State and federal agencies concurred with the district's draft management plan for restoring historic vegetation at the Fremont Cut this winter, allowing the Corps to proceed with Phase I restoration work. Phase I included planting 53 poplar trees in the historic colonnade and removing 22.

Tree removal started Feb. 5, and horticulturist Mike Fleming led replanting in March. Shrubbery will be planted by this summer.

Park manager Dru Butterfield led a team who undertook an extensive coordination process with federal, state, local, tribal, business, community groups and interested members of the public beginning in March 1998. The team presented the draft Fremont Cut Vegetation Rehabilitation Plan for public review and comment Oct. 16 through Nov. 30, 2000, at the Fremont, Queen Anne, Ballard and Seattle libraries and at the Chittenden Locks Administration Building. A public meeting Nov. 16 to gained public comments.

Terri Taylor conducted the Fremont Cut Cultural Landscape Inventory, and Chuck Ebel and Jeff Dillon worked on the biological evaluation for the plan. The



Looking west at the Fremont Cut and its well-known poplar colonnade, which the Corps is restoring.

Corps received federal concurrence from the U.S. Fish and Wildlife Service Nov. 9, the National Marine Fisheries Service Jan. 3, and the State Historic Preservation Office Jan. 11.

This comprehensive plan is broken into four phases:

- Phase 1 occurs this year, removing 22 poplars and planting 53 (2 existing young trees will be retained).
- Phase 2 is planned for 2010, when 32 poplars will be removed and 40 replanted (8 existing young trees will be retained).
- Phase 3 will be conducted in 2018, removing 19 poplars and planting 23 (1 existing young tree will be retained).
- Phase 4 is planned for 2030 or later, depending upon the health of the trees, to remove 22 poplars and replant 21 (5 existing young trees will be retained).

The existing colonnade of Lombardy poplars (Populus nigra 'Italica') will be replaced with 12-foot poplars (Populus nigra 'Afghanica'). They are projected to grow 3 feet per year, although they can grow from 3 to 5 feet per year. During all phases of this restoration effort, the majority of poplars will be taller than 40 feet. The natural resources staff will also plant various shrubs and ground covers beneath and around the trees

to increase the amount of vegetation overhanging the channel. These plants are grouped into three categories: plants of the same genus and species as the Seattle Garden Club historic period (late 1950s and '60s), plants of the same genus as existing historic plants, or native plants.

The district operates the Lake Washington Ship Canal, including the Fremont and Montlake Cuts and the Chittenden Locks in Ballard. The Lake Washington Ship Canal Historic District is listed on the National Register of Historic Places and must be maintained according to federal preservation standards.

The Corps' plan is to restore the aging poplar colonnade in a historically appropriate manner and to replant shrubs and ground covers that have been lost over time. The objective of the plan is to provide a comprehensive, practical, and environmentally sensitive guide for the Corps' management activities.



The Red Cross invited Seattle District's Urban Search and Rescue Team to use one day of their six-day Search and Rescue courses to demonstrate light search and rescue techniques. This includes methods for finding trapped victims and lifting heavy objects.

Forty Red Cross employees participated in the one-day course. Corps instructors included Norm Skjelbreia, Alan Smith, and Jim Skrinde. In the photo to the left, Smith and Skrinde (in coveralls) teach shoring up techniques; photo to the right demonstrates cribbing—placing blocks of



wood under a heavy object in order to carry it with a fork lift. The same program was given to the Snohomish Public Utility District by the district team, and they regularly attends the state Search and Rescue Conference.

#### In Memoriam

Greg Moen, former chief of Real Estate Division, died March 17 in Middletown, Ohio, at the age of 74. He served in the Navy during World War II and the Army during the Korean conflict. He retired from the district in May 1986. He worked for Alaska District before coming to Seattle and also for the Bonneville Power Administration. Greg obtained a degree in law from Gonzaga University in Spokane, Wash.

Charles Hiat, former lockmaster at LWSC, died in March. He retired from Seattle District in 1987.

Frederick A. Reinke died February 23 at the age of 58. He moved to Portland from Seattle in 1980 and was an accountant for the Corps for 20 years, retiring in 1997.

### Retirees' luncheon

The spring retirees' luncheon will be held Thursday, May 3 at the Lake City Elks. Luncheon cost is \$12.50. Please make checks payable to COE Retirees' Association and mail to Roland Blanchette at 910 N.E. 178th, Seattle, WA 98155-3615. Questions, contact Roland at (206) 363-8661.

Schedule: 11 a.m. to noon social, noon to 12:45 lunch, and a 1 to 2 p.m. program.

### **Retirements**

Ted Borchert retired in March after 29 years with the Corps, 20 years at the Lake Washington Ship Canal and a total of 31 years of federal service.



He worked in Design Branch in the district for the first part of his career and then for Operations Division at LWSC.

Geoff Mueller retired this month after 15 years with the district's Office of Counsel. Before that Geoff spent

four years in Saudi Arabia with the Corps. He started work with the Corps of Engineers in 1967 with the Sacramento District. He and



Muelle

his wife raised six children of which three were adopted.

Now Geoff joins his wife in England where she works as a teacher at a Department of Defense school.

They continue to maintain their home in Olympia, Wash.

## **Congratulations**

To Judy Smith selected for a position as an Equal Employment Opportunity specialist last month. Judy brings skills in training, counseling, special emphasis programs and much more to the job.

She has been with the district about 20 years. Formerly, she was part of the Human Resources staff involved in training and development.



It's a four-peat for RM: Linda Malchodi, Phyllis Nicholas, Lisa Kaiser and Sim Doss are winners of CWC's 3rd annual theme basket drawing. According to Carey Mellott, CWC president, the drawing is a major fund raiser. This year, 13 baskets brought in \$1,400 which just about pays for the Corps Day picnic. Baskets are made up from district-wide donations, Other CWC members are: Judy Smith, Scott Britt, Bobbie Weitzel, Carla MacLafferty and Lola Schiefelbein. Photo by Shannon Chenoweth.

Department of the Army Seattle District, Corps of Engineers P.O. Box 3755 Seattle, WA 98124-3755 Office: Public Affairs Office Official Business

Address Service Requested